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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,361	06/25/2003	Bor-Wen Chan	N1085-00089	2523

54657 7590 12/30/2005

DUANE MORRIS LLP  
IP DEPARTMENT (TSMC)  
30 SOUTH 17TH STREET  
PHILADELPHIA, PA 19103-4196

EXAMINER
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POMPEY, RON EVERETT

ART UNIT	PAPER NUMBER
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2812

DATE MAILED: 12/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/603,361

Applicant(s)

CHAN ET AL.



Examiner

Ron E. Pompey

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3-5, 8-9 and 14-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Clark et al. (US 6,767,793).

Clark discloses the limitations of:

coating a layer of gate electrode material (310, fig. 31) over top and past the opposed sides of a semiconductor device (300 fig. 30) that has been previously coated with a thin film of gate dielectric (320 , fig. 31);

planarizing the layer of gate electrode material (fig. 31) to a substantially planar surface of the gate electrode material that extends past each of the opposed sides prior to patterning the gate electrode material to form a discrete multiple gate electrode on the semiconductor device (Column 7, lines 43 – 65).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 6-7 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark et al. (US 6,767,793) as applied to claim 1 above, in view of Fried et al. (US 6,657,252) or Yu (US 6,458,662).

Clark does not disclose the claimed limitation(s) of:

applying a photoresist mask of substantially uniform thickness on the planar top surface of the planarized gate electrode material;

patterning the photoresist mask to cover a corresponding pattern of the discrete multiple gate electrode;

etching the gate electrode material that is uncovered by the photoresist mask to form the discrete multiple gate electrode; and

wherein, the gate dielectric comprises silicon oxynitride, a high permittivity material, comprising a permittivity greater than 5 and a thickness in the range of 3 and 100 Angstroms.

However,

a. Yu discloses the above claimed limitations regarding:

Applying a photoresist mask to pattern the discrete multiple gate in column(s) 4, line(s) 2-5.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Clark with Yu, because Yu discloses a conventional patterning technique in further detail than Clark.

b. Fried discloses the above claimed limitations regarding:

Various types of gate dielectric material in column(s) 5, line(s) 25-32.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Clark with Fried, because Fried discloses that the various types of gate dielectric materials were conventional gate dielectric material used in the art and it would have been a matter of design choice as to which material to use.

### ***Response to Arguments***

2. Applicant's arguments filed 2-16-05, pertaining to claims 1-19, have been fully considered but they are not persuasive. The applicant argues that Clark does not disclose the limitation of "independent claims have been amended and now recites the features of "a semiconductor device that has been previously coated with a thin film of gate dielectric on the top and the opposed sides of the semiconductor device". Amended independent claims also recites the feature of "coating a layer of gate electrode material over top and past the opposed sides of a semiconductor device . . . planarizing the layer of gate electrode material to a substantially planar surface of the gate electrode material that extends past each of the opposed sides". As seen from figure 31, the gate dielectric 320 is on top of the opposed sides of the semiconductor device and the gate electrode is planarized and extends past each of the oppose sides

of the semiconductor device. Therefore the newly amended claims are read on by the prior art of record.

### ***Conclusion***

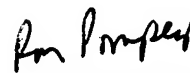
3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ron E. Pompey whose telephone number is (571) 272-1680. The examiner can normally be reached on compressed.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael S. Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Ron Pompey  
AU: 2812  
December 26, 2005

  
MICHAEL LEBENTRITT  
SUPERVISORY PATENT EXAMINER